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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,994	04/15/2004	Steven E. Ready	A2242-US-DIV	7265
33726	7590	07/26/2005	EXAMINER	
BEVER, HOFFMAN & HARMS, LLP 1432 CONCANNON BLVD., BLDG. G LIVERMORE, CA 94550			NGUYEN, LAM S	
			ART UNIT	PAPER NUMBER
			2853	

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/824,994	Applicant(s) READY ET AL.	
	Examiner LAM S. NGUYEN	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>04/15/04, 11/02/04</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Objections

1. Claim 3 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 3, depending on claim 1, cites the limitation "the first line is at a 45° angle with respect to the first direction and the second direction" that does not further limit the angle cited in claim 1 which is defined as diagonal.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3, depending on claim 1, cites the 45-degree angle that is previously cited as diagonal in claim 1. In fact, there exists a confliction because the angle cannot be 45 degrees and diagonal at the same time. As a result, the scope of the angle cannot be defined.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

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international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, 4-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Kubo et al. (US 6460958).

Kubo et al. discloses a print head (*FIG. 2, element 150*) for a printing system, the print head being configured to print in a first direction (*FIG. 2: The first direction is a printing/scanning direction when the printhead 150 is scanning in the X direction and forming image on the stationary substrate 10. In this case, the first direction is the X direction*) and a second direction (*FIG. 2: The second direction is a printing/scanning direction formed the same as the first direction after the substrate is rotated at an angle. Thus, the second direction is nonparallel to the first direction if the angle is not at 180 or 360 degrees*), the first direction and the second direction being nonparallel (*Note: The claim is interpreted as that both first and second directions on the substrate are the same as the scanning direction of the printhead to form two printing lines (at different moments) angled with each other due to the rotation of the substrate*), the print head comprising:

an ejector base (*FIG. 3A-B, element 153*); and

a first plurality of ejectors (*FIG. 3A-B, element 152*) mounted in the ejector base, the first plurality of ejectors being arranged in a first line (*FIG. 3A-B: Y direction*), the first line being diagonal to the first direction and the second direction (*FIG. 2, 3A-B: The Y direction is always diagonal to the printing/scanning directions*).

Referring to claim 2: wherein the first direction and the second direction are orthogonal (*FIG. 2: In the case that the substrate 182 is rotated by 90 degrees, then the first scanning direction and the second scanning direction are orthogonal to each other*).

Referring to claims 6-7: further comprising second and third plurality of ejectors mounted in the ejector base, the second or third plurality of ejectors being arranged in a second or third line, the second or third line being parallel to the first line, wherein each of the first plurality of ejectors and the second plurality of ejectors has a unique position in the first direction (*FIG. 3A: Each array K, C, M, and Y are parallel and each nozzle in the array is in an unique position in the X direction*), and wherein each of the first plurality of ejectors and the third plurality of ejectors has a unique position in the second direction (*FIG. 3A: Each array K, C, M, and Y are parallel and each nozzle in the array is in an unique position in the Y direction in case that the angle is 90 degrees*).

Referring to claims 4, 8-9: wherein the plurality of ejectors are configured to print an IC pattern, a phase change material for a semiconductor process mask, or a solution-processable electronic materials to form an integrated circuit (*Since the claims define a printhead, the intended use of the printhead for printing/forming an IC pattern, a semiconductor process mask, or an integrated circuit is considered, but not given patentable weight*).

Referring to claim 4-5: wherein a first spacing between each of the first plurality of ejectors in the first direction is an integer multiple of a first design rule of the IC pattern, and wherein a second spacing between each of the first plurality of ejectors in the second direction is an integer multiple of a second design rule of the IC pattern, and wherein the first design rule is the same as the second design rule (*FIG. 3A: The spacing of each array K, C, M, and Y are the same respect to either the first or second direction*) (*Since the claims define a printhead, the intended use of the printhead for printing/forming an IC pattern is considered, but not given patentable weight. In addition, because the first and second design rules of the IC pattern are not*

part of the printhead, these elements are not considered as claim limitations contributing to the structure of the printhead).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo et al. (US 6460958) as applied to claim 1-2 above, and further in view of Hino et al. (US 5924804). (*The rejection is made with assumption that the confliction introduced above has been corrected*).

Kobu et al. discloses the claimed invention as discussed above except wherein the first line is at a 45-degree angle with respect to the first direction and the second direction (*as discussed above, both first and second directions are the same as the scanning direction of the printhead to form two printing lines (at different moments) angled with each other due to the rotation of the substrate*).

Hino et al. discloses a printing apparatus having a printhead for forming images on a printing medium while the printhead is moving in a scanning direction (*Abstract*), wherein the printhead includes arrays of nozzles inclined by an inclination angle with respect to the scanning direction (*column 2, lines 52-55*), and wherein the inclination angle varies from 0 to 90 degrees (*column 1, lines 50-56*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time invention was made to modify the printhead structure disclosed by Kobu et al. to incline the

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printhead in an angle from 0 to 90 degrees, such as 45 degrees, respect to the scanning direction as disclosed by Hino et al. The motivation for doing so would have been to be possible to set the longitudinal resolution voluntarily as taught by Hino et al. (*column 1, lines 55-60*).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S. NGUYEN whose telephone number is (571)272-2151.

The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D. MEIER can be reached on (571)272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LN
July 24, 2005



HAI PHAM
PRIMARY EXAMINER